

We Claim:

1 1. A method of operating a comfort system having an evaporator for
2 conducting the flow of refrigerant therethrough and a heat exchanger for conducting
3 the flow of hot gases therethrough, and a blower for selectively circulating air over
4 either said heat exchanger to affect the transfer of heat to said air or over said
5 evaporator to affect the transfer of heat from said air comprising the steps of:

6 simultaneously causing the refrigerant flow to said evaporator and the hot gas
7 to flow through said heat exchanger while causing said blower to circulate air over
8 both said evaporator and said heat exchanger; and

9 causing said refrigerant to flow from said evaporator into a high pressure side
10 of a compressor such that said compressor operates in reverse as an expander to
11 drive a power generator.

1 2. A method as set forth in claim 1 and including the further step of
2 causing said refrigerant to flow from a low pressure side of said compressor to a
3 condenser.

1 3. A method as set forth in claim 1 and including the step of pumping
2 liquid refrigerant from said condenser to said evaporator.

1 4. A method as set forth in claim 1 wherein said evaporator is within a
2 closed circuit for serially conducting the flow of refrigerant from said evaporator to a
3 low pressure side of said compressor and from high pressure side of said compressor
4 to a condenser and to an expansion valve, and wherein the method includes the
5 additional step of diverting the flow of refrigerant to flow into the high pressure side
6 rather than a low pressure side of said compressor.

1 5. A method as set forth in claim 4 and including the step of diverting
2 the flow of refrigerant to flow from a low pressure side of said compressor rather
3 than from a high pressure side thereof.

1 6. A method as set forth in claim 4 and including the step of diverting
2 the flow of refrigerant to a pump rather then to said expansion valve.

1 7. A method as set forth in claim 4 and including the step of diverting
2 the flow of refrigerant to flow from said pump rather than from said expansion
3 valve.

1 8. A comfort system for heating or cooling air by the selective
2 circulation of air over a furnace heat exchanger or over an air conditioning
3 evaporator coil comprising:

4 a heating system for circulating hot gases through the heat exchanger;
5 an air conditioning system for circulating refrigerant through an evaporator
6 coil, a compressor , a condenser and an expansion valve;
7 an activation control for simultaneously operating said heating and air
8 conditioning systems to cause a combined heating of the air circulated thereover; and
9 flow control apparatus for causing the flow of refrigerant to pass from said
10 evaporator to a high pressure side of said compressor such that said compressor is
11 driven in reverse to function as a turbine.

1 9. A comfort system as set forth in claim 8 wherein said compressor is a
2 motor driven compressor and further wherein when said compressor is made to
3 operate in reverse, said compressor functions to drive said motor in reverse to
4 generate power.

1 10. A comfort system as set forth in claim 8 wherein said compressor is a
2 scroll compressor.

1 11. A comfort system as set forth in claim 8 wherein said compressor is a
2 screw compressor.

1 12. A comfort system as set forth in claim 8 and including a pump for
2 circulating refrigerant from said condenser to said evaporator.

1 13. A comfort system as set forth in claim 8 wherein said flow control
2 apparatus includes valve means for conducting the flow of refrigerant from a low
3 pressure side of said compressor to said condenser.

1 14. A comfort system as set forth in claim 8 wherein flow control
2 apparatus includes valve means for conducting the flow of refrigerant from said
3 condenser to a pump.

1 15. A comfort system as set forth in claim 8 wherein said flow control
2 apparatus includes valve means for conducting the flow of refrigerant of a pump to
3 said evaporator.

1 16. A comfort system as set forth in claim 8 wherein said flow control
2 apparatus includes at least one three way valve.

1 17. A comfort system as set forth in claim 8 wherein said activation
2 control also includes a battery.

1 18. A method operating a comfort system having a heating system and a
2 cooling system, the heating system having a heat exchanger through which hot gases
3 are circulated and over which air is circulated to be heated, and the cooling system
4 having in serial flow relationship a motor driven compressor, a condenser, an
5 expansion valve and an evaporator coil, said heat exchanger and said evaporator coil
6 both being in the path of the circulated air, comprising the steps of:

7 causing said comfort system to operate such that circulated air passes over
8 both said heat exchanger to be heated and over said evaporator coil; and

9 changing the flow of refrigerant into said compressor from a low pressure
10 side thereof to a high pressure side thereof so as to cause it to operate in reverse as a
11 turbine.

1 19. A method as set forth in claim 18 and including the step of providing
2 a pump to circulate refrigerant from said condenser to said evaporator coil.

1 20. A method as set forth in claim 18 wherein said compressor is motor
2 driven and further wherein the step of causing said compressor to operate in reverse
3 also causes said compressor to drive said motor in reverse such that said motor
4 functions as a generator.

1 21. A method as set forth in claim 18 wherein said compressor is a scroll
2 compressor.

1 22. A method as set forth in claim 18 wherein said compressor is a screw
2 compressor.